CLAIMS

1. A multi-nuclear metal molecular beam apparatus, which generates an ion beam by using a multi-nuclear metal molecule.

2. The multi-nuclear metal molecular beam apparatus as claimed in claim 1, wherein the multi-nuclear metal molecule that is vaporized or atomized, is ionized.

3. The multi-nuclear metal molecular beam apparatus as claimed in claim 2, wherein the multi-nuclear metal molecule that is vaporized or atomized, is ionized by electron impact.

4. The multi-nuclear metal molecular beam apparatus as claimed in claim 2, wherein the multi-nuclear metal molecule that is vaporized or atomized, is ionized by light irradiation.

5. The multi-nuclear metal molecular beam apparatus as claimed in claim 2, wherein the multi-nuclear metal molecule that is vaporized or atomized, is ionized by plasma.

6. The multi-nuclear metal molecular beam apparatus as claimed in claim 2, wherein the multi-nuclear metal molecule that is vaporized or atomized, is ionized by an electric field.

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7. The multi-nuclear metal molecular beam apparatus as claimed in claim 2, wherein the multi-nuclear metal molecule that is vaporized or atomized, is ionized by electric charge exchange of highly-excited electrons.

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8. The multi-nuclear metal molecular beam apparatus as claimed in claim 1, wherein the multi-nuclear metal molecule is vaporized and simultaneously ionized.

15 9. The multi-nuclear metal molecular beam apparatus as claimed in claim 8, wherein the multi-nuclear metal molecule is ionized by laser ablation.

10. The multi-nuclear metal molecular beam apparatus
20 as claimed in any one of claims 1 to 7, wherein the multi-nuclear metal molecule is dissolved in a solvent and generated as mist, and the mist of the multi-nuclear metal molecule is given an electric charge, to be ionized.

25 11. A multi-nuclear metal molecular beam apparatus,

comprising:

     vaporization means of a multi-nuclear metal molecule;

     ionization means;

5   acceleration means;

     convergence means; and

     scanning means.